

Commercial Thinning Pine Stands

Alabama Guide Sheet No. AL 666



Definition

The harvesting of merchantable trees to reduce stand density primarily to improve growth, enhance stand health, recover potential mortality, or improve wildlife habitat.

Criteria

Thinning should be planned based on site specific stand conditions such as stand density, quality of trees, soils, insect infestations, and disease. Thinning should be applied in a manner that does little or no damage to remaining trees and valuable soil and water resources. It is advisable to have thinning conducted under the oversight of a professional forester.

When to Thin

The time to thin will depend on tree size and stand density. Basal area is a measure of stand density that is used by professional foresters. Basal area is the cross-sectional area in square feet that a tree occupies on a per acre basis. The measurement is taken at 4.5 feet above the ground. Foresters use a tool called a wedge prism to estimate basal area. Trees generally should be thinned when basal areas are 100 square feet or more. Trees are usually thinned to a residual basal area of 70 or 80 square feet. Another way to determine when to thin is by observing the live crown ratio of the trees in the stand which is the height of the live crown (the part of the tree with live branches) divided by the total height of the tree. The stand should be thinned when the live crown ratio falls below 35 to 40 percent. A volume of 5 or 6 cords of wood is needed to make a thinning profitable.

Thinning Methods

Row Thinning

Row thinning is used in pine plantations where trees are planted in rows. Entire rows are removed at designated intervals. Trees may also be removed on a selective basis in the remaining rows. Intervals may be every third, fourth, fifth, or sixth row. Row thinning is a quick way to reduce the number of stems per acre.

Row thinning minimizes equipment damage to residual trees. Unfortunately, it also involves the removal of quality trees as well as trees that need to be removed in a thinning. Row thinning is ideal for a first thinning where you have a large number of stems per acre and machinery access and maneuverability is limited. Feller bunchers with short wheel bases are often used for felling and bunching trees in row thinning with a prehauler or skidder used to transport trees from the forest to the haul truck. Because row thinning often requires expensive equipment, tracts considered for row thinning must be fairly large.

Strip Thinning

Strip thinning or corridor thinning is used in natural stands or in plantations where it is not possible to follow the rows. In strip thinning, all of the trees in a strip of a certain width are removed. Strips should follow the contour and be wide enough to allow the operation of the necessary machinery. The cut strip should be at least 15 feet wide. Strips of uncut timber between corridors should be about 30 to 40 feet. The width can be varied according to landowner objectives.

Selection Thinning

Selection thinning, also called leave-tree or low thinning, is a common method in the South. This type of thinning removes trees that have been overtopped by faster growing trees and trees that are poorly formed or diseased. Selection thinning is usually used in natural stands and plantations that have previously been thinned. It is seldom used in unthinned plantations because of the potential damage to residual trees. Cut or leave trees should be marked before thinning.

Another method is to let the timber harvester select the trees to be removed. This method saves the cost of marking but should be closely monitored to make sure that the best trees are retained and that the proper number of trees are being left for future growth. It is advisable to have a professional forester to oversee this type of thinning.

Timing the Thinning

Timing is an important consideration in thinning because of possible insect and disease damage that may occur if the thinning is conducted at the wrong time of year. Annosus root rot is more likely to occur in the winter months. Stands with a high probability of infection should be thinned from June to August.

The presence of pine bark beetles also affects the time of thinning. When there is a high occurrence of pine bark beetle attacks, thinning should be delayed. Harvesting damage to residual trees often attracts pine bark beetles. During periods of high infestation, thinning should be conducted during the winter months. A healthy stand is the best defense against pine bark beetles. Thinning helps keep stands healthy.

References

- USDA/NRCS Alabama Conservation Practice Standard Code 666 – Forest Stand Improvement. January 1999.
- Thinning Your Timber for Profit. Circular 781. The University of Georgia Cooperative Extension Service. April 1999.
- Intermediate-Aged Stand Management: Between Planting and Harvest. The University of Georgia Cooperative Extension Service. June 1996.
- Thinning Pine Stands for Top Returns. ANR-396. Alabama Cooperative Extension System. August 1983.

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